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EXAMINER	
NELSON, MICHAEL B	

ART UNIT	PAPER NUMBER
1794	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/541,147	STEINBACH, PAOLO	
	Examiner	Art Unit	
	MICHAEL B. NELSON	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35,66,67 and 70-72* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35,66,67 and 70-72* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/30/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

33DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1-35, 66-67 and 70-72 in the reply filed on 06/10/08 is acknowledged. The traversal is on the ground(s) that different species (a-e) are within the same field of search. Applicant's arguments for the withdrawal of the election of species requirement is found persuasive. No arguments by applicant against the restriction between inventive Groups I-III were present in the reply. The claims under examination on the merits in the current office action are therefore claims **1-35, 66-67 and 70-72**.

The requirement is still deemed proper and is therefore made FINAL.

Examiner's Note

2. The use of produce-by-process limitations has been noted in Claims 15-22, such as, for example, "hard heating," "infrared radiation," and "calendaring with heated rollers". Even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself. In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). As the court stated in Thorpe, 777 F.2d at 697, 227 USPQ at 966 (The patentability of a product does not depend on its method of production. In re Pilkington, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969). If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.).

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The instant abstract contains more than 150 words.

Claim Objections

4. Claims 2, 7, 20 and 34 are objected to because of the following informalities: in claim 2, "ti" line 4, and claim 7, "ripid" line 4, and claim 20, "I" lines 3 and 4, all appear to be typographical errors. Ripid will be taken as rapid and the other two errors will be omitted in order to advance prosecution. Claim 34 appears to need the word "a" in between "has" and "coating layer." Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 3, 7, 8, 9, 22, 23, 70 and 72 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Regarding claims 3, 22, 23, 70 and 72, the phrases "preferably," "particularly," and "especially" render the claims indefinite because it is unclear whether the limitations following the phrases are part of the claimed invention. See MPEP § 2173.05(d).

8. Regarding claims 7and 8, the term "parameter" is vague and indefinite in that it is unclear what parameter of the "linear" function is being recited. If the parameter is the slope (i.e. m from y=m*x+b), it is unclear what the units the slope of the gradient function would have (i.e. change in fiber viscoelasticity over depth?). The qualitative limitations (i.e. greater than or less than 1) implies that a corresponding qualitative formula is being referred to, yet no such formula can be found in the specification. Appropriate correction is required.

9. Regarding claim 9, the dependency recited in claim 9 appears to contain a typographical error since claim 9 cannot draw dependency from itself. For the purposes of advancing prosecution the claim will be taken as being dependent on claim 1. Appropriate correction is required.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 3, 5, 10, 16, 18-20, 27, 28 and 70 are rejected under 35 U.S.C. 102(b) as being anticipated by Peoples, Jr. (U.S. 4,568,581).

Regarding claim 1, Peoples, Jr. discloses a thermoformable fibrous article of interlaced, non-woven, thermoplastic fibers which are subjected to heat and pressure to cause melting of

fibers at one surface depth, while leaving the fibers at other depths in the fibrous phase (See Abstract and Fig. 5.).

Regarding claims 3, 5, 10, 16, 18-20, 27, 28 and 70, Peoples Jr. discloses all of the limitations as set forth above. Additionally, Peoples Jr. discloses an asymmetric fibrous article, with fibers in a central thickness region that remain in the fibrous phase after heating (Fig. 1). Polyolefin polymers are mentioned as materials for the fibers (C3, L45-C4, L5). The heating elements in the heating step (C5, L25-40) would inherently apply an amount of heat through radiation to some degree. Temperature controlled molds and countermolds are disclosed for use in forming, through compression, the final non-plane shaped product from the fibrous article (C5, L40-55 and Fig. 7, 9 and 10). The final product is disclosed for use in interior automobile trunk applications (C1, L5-20).

12. Claims 66 and 67 are rejected under 35 U.S.C. 102(b) as being anticipated by Boulanger (U.S. 5,362,546).

Regarding claims 66 and 67, Boulanger discloses a non-woven fiber article with fibers that have varying degrees of viscoelastic and fibrous phases depending on the depth (See Fig. 10 and C5, L55-C6, L30 and C7, L60-C8, L16, the outer fibrous layers, 15, contain melted thermoplastic fibers, while the central layer, 44, contains glass fibers). The fibrous layers, 15, having varying thickness (Fig. 7), which affect the function describing the degree of visco-elasticity in terms of the penetration depth in the article (i.e. the penetration of the melted fiber layer, 15, changes in the overall article of Fig. 10, as a result of its irregular thickness).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. Claims 2, 4, 6, 7-9, 11-14, 22-24, 29, 71 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peoples, Jr. (U.S. 4,568,581) as applied to claim 1 above, and further in view of Desroches et al. (U.S. 2002/0137421).

Regarding claim 2, Peoples Jr. discloses all of the limitations as set forth above. Peoples Jr. does not disclose that the melted surface portion of the polymeric article be on both exposed surfaces. Desroches et al. discloses applying the surface melting heat to only the two outer surfaces of the fibrous article ([0012]). Desroches also discloses the use of bi-component fibers with a core-sheath configuration with a lower melting point resin as the sheath ([0029]). At the temperature described for heating the article, the sheath, and not the core, melts, thereby causing the bicomponent fibers to partially lose their fibrous phase. The use of bicomponent fibers is

disclosed as being beneficial due to the increased in fiber bonding strength ([0029]). In the examples a majority of the fiber (75%) are of the bicomponent type, with the other 25% being larger denier fibers having the same type of material as the core of the bicomponent fiber (i.e. high melting point). Under these conditions, and with preferential heating on the surfaces ([0012]), a majority of the fibers would be exposed to melting conditions causing them to partially lose their fibrous phase (i.e. the melting of the sheath of the bicomponent fibers on the surfaces). The central regions away from the heated surfaces would have maintained their fibrous phase and there would be intermediate positions between the outermost surface and the absolute center where there is an intermediate amount of fiber phase transition (i.e. continuous gradient).

The inventions of both People Jr. and Desroches et al. are drawn to the field of thermoformable fibrous materials and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the fibrous article of People Jr. by preferentially heating the article only on the surfaces and using a majority of bicomponent fibers as taught by Desroches et al. for the purposes of imparting improved fiber bonding strength ([0029]).

Regarding claims 4, 6, 7-9, 22, 23, 29, 71 and 72, modified Peoples Jr. discloses all of the limitations as set forth above. Additionally, Desroches et al. discloses a symmetrically surface treated structure ([0012]), which, having a core area that is untreated (i.e. unmelted), would exhibit non-linear gradient functionality (i.e. high amount of melting/low melting/high melting). Desroches et al. discloses selective surface heating and the use of a majority of bicomponent

fibers which would, as described above, result in a majority of the fibers partially losing their fiberous phase at the surface while the fibers of the central region maintain their fiberous phase, with an intermediate region having intermediate amounts of fiber melting of the bicomponent fibers. In the process of selective melting the temperature used is 180 degrees Celsius, and the weight basis of the article is 1765 g/m^2, which is within the instant ranges of claims 22 and 23. The fibrous product of Desroches et al. is disclosed as being used in vehicles requiring a low weight basis (i.e. airplanes) and acoustic dampening shields (i.e. for building construction) ([0003]).

It would be obvious to one having ordinary skill in the art to optimize the degree of rapidity of change between the melted fiber regions and the non-melted fiber regions through routine experimentation and by altering the total thickness of the article and the amount of heat and time of exposure to the heat at the surfaces of the article (i.e. time of exposure effecting how deep the heat from the surfaces would reach). Adjusting the relative thicknesses of the melted and non-melted regions would affect the stiffness (i.e. due to the increase fiber bond strength from the melted fibers) and would therefore be a property that one of ordinary skill would adjust to most optimally fit the particular marketable application.

Regarding claims 11-14, modified Peoples Jr. discloses all of the limitations as set forth above. Additionally Peoples Jr. discloses the use of a polyethylene glycol terephthalate terpolymer (PETG, C3, L45-C4, L5).

16. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peoples, Jr. (U.S. 4,568,581) as applied to claim 1 above, and further in view of Bigelow-Sanford Inc. (G.B. 1,068,432).

Regarding claim 15, Peoples Jr. discloses all of the limitations as set forth above. Peoples Jr. does not disclose "hard heating" the surfaces of the article at a temperature above the highest melting point. Bigelow-Sanford Inc. discloses a non-woven fibrous article which is heated on its surface to a temperature above the melting point of the thermoplastic fiber used (i.e. propylene), while leaving the inner fibers unmelted (i.e. a relatively short period of time of exposure) (Page 4, L30-45). The surface melting is discloses as providing a hardened and more rigid surface (Page 3, L40-45).

The inventions of both People Jr. and Bigelow-Sanford Inc. are drawn to the field of fibrous thermoformable articles and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the surface heating of People Jr. by applying the brief higher heat (i.e. hard heat) as taught by Bigelow-Sanford Inc. for the purposes of imparting increased surface hardness.

17. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peoples, Jr. (U.S. 4,568,581) as applied to claim 1 above, and further in view of Benedyk (U.S. 4,258,093).

Regarding claim 17, Peoples Jr. discloses all of the limitations as set forth above. Peoples Jr, does not specifically disclose the use of infrared radiation for the heating means, although his heating means would include hot-gas convective heating (Fig. 8). Benedyk disclose that infrared heating and hot-gas heating are equivalent forms of heating fibrous articles (C5, L1-

15). It would have been obvious to have added the infrared heating of Benedyk to the convection heating means of Peoples Jr. because it would amount to nothing more than a use of a known heating means for melting fibers of a fibrous article to accomplish an entirely expected result.

18. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peoples, Jr. (U.S. 4,568,581) as applied to claim 1 above, and further in view of Fottinger et al. (U.S. 5,387,382).

Regarding claim 21, Peoples Jr. discloses all of the limitations as set forth above. Peoples Jr. does not disclose the use of heated calendaring rollers for compression. Fottinger et al. discloses the use of pre-compaction of a fiber article between heated rollers, before subsequent heating processes, in order to improve inner coherence (C2, L60-65).

The inventions of both Peoples Jr. and Fottinger et al. are drawn to the field of heated fibrous articles and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the process of heating the fibrous articles of Peoples Jr. by adding the preheating step of pre-compaction as taught by Fottinger et al. for the purposes of imparting improved inner coherence.

19. Claims 24-26, 30-32 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peoples, Jr. (U.S. 4,568,581) as applied to claim 1 above, and further in view of Copperwheat (U.S. 6,008,149), with evidentiary support from Heguri et al. (U.S. 6,485,825).

Regarding claims 24-26, 30-32 and 34, Peoples Jr. discloses all of the limitations as set forth above. People Jr. does not disclose the addition of decorative fabrics to the surface of the

article. Copperwheat discloses a polymeric article with interlayer physico-chemical fiber bonding (C5, L1-35). Copperwheat also discloses applying adhesive layers to the fiberous laminated article with flame lamination (C4, L35-50), which would result in increased surface polarity, (See Heguri et al., C14, L1-10). The adhesive layer is disclosed for use with a facing fabric layer, which one of ordinary skill in the art would know to put on both exposed surfaces of an article in order to maximize the tactile or aesthetic benefits (C3, L30-55).

The inventions of both Peoples Jr. and Copperwheat are drawn to the field of thermoformed fibrous articles and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the fibrous article of Peoples Jr. by adding an adhesive and decorative facing fabric as taught by Copperwheat for the purposes of imparting increased marketability through improved aesthetic appeal.

20. Claims 33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peoples, Jr. (U.S. 4,568,581) in view of Copperwheat (U.S. 6,008,149), as applied to claims 1 and 32 above, and further in view of Hansen et al. (U.S. 6,277,312).

Regarding claims 33 and 35, modified Peoples Jr. discloses all of the limitations as set forth above. Modified Peoples Jr. does not disclose the addition of an outer hard coat layer. Hansen et al. discloses the use of an external hard coat layer on a molded automobile part in order to protect the decorative coating below (C3, L5-15). The hard coat layer would have a smooth surface.

The inventions of modified People Jr., and Hansen et al. and are drawn to the field of molded articles for automobiles and therefore it would have been obvious to one having ordinary

skill in the art at the time of the invention to have modified the molded article of modified People Jr. by adding a hard coat layer as taught by Hansen et al. for the purposes of imparting improved protection of the decorative qualities.

Conclusion

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL B. NELSON whose telephone number is (571) 270-3877. The examiner can normally be reached on Monday through Thursday 6AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MN/
07/01/08

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